REMARKS/ARGUMENTS

In the Office Action, claims 1-9 and 12-13 were said to have allowable subject matter.

Claims 14-22 were withdrawn from further consideration purusant to 37 CFR 1.142(b) as being drawn to a nonelected invention as stated in the Office Action.

The drawings were objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: figure 1, 14. This objection to the drawing is traversed because the specification (page 7, line 12) discloses a displacement guage 14 shown in Figs. 1-3

Claims 10-13 were rejected under 35 USC 112, first paragraph, as failing to comply with the written description requirement, wherein claim 10 recites "at least one of" in line 5 of the claim.

Claims 1-9 were rejected under 35 USC 112, second paragraph, as being indefinite for reasons set forth in the Office Action.

Claims 10 and 11 were rejected under 35 USC 102(b) as anticipated by Hattori 5,981,305 on the grounds set forth in the Office Action.

The following argument is presented to overcome the grounds of rejection with respect to the rejection of claim 10 and its dependent claims 11-13 under 35 USC 112, first paragraph, the following is noted. The attached particle removal apparatus, the film surface, processing apparatus, and a pressure apparatus can be employed individually or in combination in the film forming apparatus of the present invention. This is described in page 7, lines 22–25 and page 8, lines 3-8 of the specification.

With respect to the rejections under 34 US 112, second paragraph, the claims have been amended for clarification to overcome these grounds of rejection.

The following is noted with respect to the listings of various processes in claim 1 and various devices in claim 10. The final film 2 consists of single layer or multi layer deposited films 2a in the present invention.

The planarizing step of the present invention is performed using one or more of the processes rolling or scraping , grinding or polishing, or pressing the surface layer portion of a deposited film 2a to prevent occurrence of defects and to improve the quality of the final film 2.

The kind and the number of processes employed in the planarizing step in the method of the present invention can be selected alternatively. This is described on page 8, lines 9–21 of the specification, and also in the passage on page 7 at lines 18-25 (particularly lines 22-25) calling for selective utilization of the different processes, namely, removal by the blade 8 or grinding by the roller 12.

Claim 5 is amended to describe the optional step in the film method of the present invention of applying the mechanical impulse force to the ultra fine particles supplied to the substrate to crush and bond again the particle in addition to applying the planarizing step.

The step of applying mechanical impulse force and planarizing step are different steps.

Claim 8 describes that the pre-processing of the ultra fine particles can be applied to these particles before supplying them on the substrate. The pre-processing comprises one or more processes of adjusting a preliminary baking temperature of source ultra fine particles; heating ultra fine particles prepared to have a particle diameter of about several tens nm and aggregating the particles to form secondary particles having a particle diameter of about 50 nm to 1 micron m; or forming cracks in ultra fine particles so as to make the particles easy to be crushed. One or more of these pre-processes are selected alternatively. This is described page 10, lines 4-16 of the specification. The wording "a long time period" is deleted in claim 8.

With respect to the rejections of claims 10-11 under 35 USC 102 based on Hattori:

The present invention relates to the ultra fine particle film forming method and apparatus which provides for planarizing a surface of the deposited film of the ultra fine particles supplied to the substrate.

The final film 2 consists of single layer or multiple layer of deposited films 2a in the present invention.

An important feature of the present invention is that the planarizing step is executed to the surface of the deposited film 2a of the ultra fine particles supplied to the substrate, and that each of planarizing process is: (1) executed each time the deposited film 2a of a single layer structure is formed by supplying ultra fine particles from the ultra fine particle supply apparatus to the substrate, or (2) executed at the time the film 2a of multi layers structure is formed by plural steps of supplying ultra fine particles from the ultra fine particle supply apparatus to the substrate.

The inventor discovered that if the surface of the deposited film is rough and is not smooth or not flat, the density of the final film 2 can not be uniform and the final film 2 is unable to physically be formed and is unable to get high theoretical density in the particle supplying step onto the substrate to form the film. More specifically, if ultra fine particles supplied out on to the substrate contain a defective particle having a large particle diameter or an insufficient speed, the large diameter defective particle attaches to and sinks in the surface layer of the deposited film and this defective particle functions as a mask so that deposition does not occur thereafter on the surface of this defective particle.

Therefore the surface of the deposited film is planarized in the present invention.

A further important feature of the present invention is that final ultra fine particle film is composed of one or more deposited films. The deposited film is processed by the planarizing step before forming the final film, i.e. the forming of final film contains one or more of the processes of the planarizing step for planarizing a surface of the deposited film of the ultra fine particles supplied to the substrate. Each of the planarizing processes is executed each time the deposited film 2a of a single layer structure is formed by a supplying of the ultra fine particles to the substrate or executed at the time the film 2a of multi layers structure is formed by plural instances of supplying ultra fine particles from the ultra fine particle supply apparatus to the substrate.

In contrast with the present invention, Hattori relates to the reinforcing of the the film 15 of the ultra fine particle in which the other supporting substrate 18 is applied on the rear surface of the film via an adhesive layer 17, and planarizing of the film 15 is performed to fix the supporting substrate 18 on a rear surface of the film after planarizing the emitter layer (film) 15 or adhesive layer 17. After fixing the supporting substrate 18 to the film 15, the first support substrate 10, the low melting point material layer 11 and the sacrificial film 13 are removed to bare the top surface of the film.

Thus Hattori does not operate on an exposed surface of the film, and is not technology for improvement of quality of the ultra fine particle film, but technology for improving the adhesive character of the surface of film or of adhesive layer to supporting substrate. Further the surface for which the

planarization is performed in the present invention is the top surface of the film, but it is the rear surface to which processing is directed in Hattori.

As a conclusion, the present invention is not met by Hattori.

In the event there are further issues remaining in any respect the Examiner is respectfully requested to telephone attorney to reach agreement to expedite issuance of this application.

Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Since the present claims set forth the present invention patentably and distinctly, and are not taught by the cited art either taken alone or in combination, this amendment is believed to place this case in condition for allowance and the Examiner is respectfully requested to reconsider the matter, enter this amendment, and to allow all of the claims in this case.

Respectfully submitted
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by:_____
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CERTIFICATE OF MAILING UNDER 37 CFR SECTION 1.8(a)

I hereby certify that the accompanying Amendment is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, PO Box 1450, Alexandria, VA 22313-1450, on January 7, 2004.
Dated: January 7, 2004

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